

# Knowledge of HIV post exposure prophylaxis among public healthcare providers in Ilala District, Dar es Salaam

**Victor Kinigwa**

Muhimbili University of Health and Allied Sciences

**Manase Kilonzi** (✉ [manasekilonzi@yahoo.com](mailto:manasekilonzi@yahoo.com))

Muhimbili University of Health and Allied Sciences <https://orcid.org/0000-0002-5355-8353>

**Wigilya P. Mikomangwa**

Muhimbili University of Health and Allied Sciences

**George M. Bwire**

Muhimbili University of Health and Allied Sciences

**Hamu J. Mlyuka**

Muhimbili University of Health and Allied Sciences

**Alphonse I. Marealle**

Muhimbili University of Health and Allied Sciences

**Ritah F. Mutagonda**

Muhimbili University of Health and Allied Sciences

**Omary Minzi**

Muhimbili University of Health and Allied Sciences

---

## Research article

**Keywords:** Health care providers, post-exposure prophylaxis and knowledge

**Posted Date:** September 2nd, 2019

**DOI:** <https://doi.org/10.21203/rs.2.13853/v1>

**License:** © ⓘ This work is licensed under a Creative Commons Attribution 4.0 International License.

[Read Full License](#)

---

# Abstract

**Background** Post-exposure prophylaxis (PEP) using highly active antiretroviral therapy (HAART) significantly reduces the risk of HIV infection to the victims. Evidence based practice has brought dynamicity in HAART regimens necessitating continual updates on knowledge of health care providers (HCPs) regarding PEP. Therefore, this study aimed to assess contemporary knowledge of HCPs on PEP three years after the introduction of Tenofovir based HAART regimens as a default for PEP in Tanzania.

**Methods** A health care facilities based cross-sectional study was conducted between April and June 2018 in Ilala municipal Dar es Salaam, Tanzania. A consecutive sampling method was deployed and 233 HCPs were enrolled. Data were collected using a self-administered questionnaire with closed-ended questions. The level of knowledge was graded using Bloom's cut off point. Chi-square and multinomial logistic regression tests were used to check for association at significance level of  $p < 0.05$ .

**Results** A total of 13 health facilities were visited and 233 HCPs were interviewed among them 30.9%, 5.6%, 58.4%, and 5.2% were medical doctors, pharmaceutical personnel, nurses and laboratory technician respectively. The majority 72.1% (168) of the participants were female and the majority 47.2% (110) of the HCPs were aged  $\geq 55$  years. Diploma (43.8% (102)) education level constituted the largest proportion of the participants and the majority 50.2% (117) were nurses. About 70% of the respondents had low to moderate knowledge. The majority 87.6% (204) of the study participants were knowledgeable on dosage duration for PEP. However, only 41.2% (96) knew the recommended ARV regimen for PEP in Tanzania and 48.9% (114) knew how soon PEP should be initiated to prevent HIV acquisition. Certificate holders were more likely to have low knowledge on PEP compared to diploma and degree holders aOR (95% CI) 14(3.9 – 50.8),  $p < 0.01$ . The main source of PEP information to study participants was HIV treatment guideline (29%) followed by seminars (22%).

**Conclusion** The majority of the assessed HCPs had low to moderate knowledge on PEP. The level of knowledge on PEP among HCPs increased with the level of education whereby those with a degree are more knowledgeable.

## Introduction

Human immunodeficiency virus (HIV) infection is one among the diseases of public concern worldwide. The infection is high in developing countries compared to developed countries. It is transmitted by different models such as unsafe sex, transfusion of infected blood, sharing of sharp objects with HIV infected person and unintentional exposure to infected blood/body fluids at work place (occupational exposure) [1,2]. Occupational exposure plays a significant role in HIV transmission. Healthcare providers (HCPs) are among the group of people named by World Health Organization (WHO) to be at risk of being infected by HIV as a result of exposure to infectious materials through injuries/accidents from sharp objects such as needle stick, scissors, and knives or contact with blood or other infectious body fluids [3–7]. The severity of exposure increases the odds of occupational transmission. For example, percutaneous

exposure to HIV infected blood results to 0.3% increased risk of HIV and 0.09% when exposed to mucosal membrane. WHO, reports 3 million HCPs are exposed to HIV percutaneously; these results to 200–5000 HIV infections worldwide. About 90% of occupational exposures to HIV occur in low-resource countries [8,9]. The HIV transmission can be reduced by 81% following the timely administration of antiretroviral medications (ARVs) [10,11].

ARVs have been used in preventing the acquisition of HIV since 1990 as post-exposure prophylaxis (PEP). PEP is the immediate administration of ARVs following exposure to potentially infected blood or other bodily fluids to minimize the risk of acquiring HIV infection [12,13]. Usually, PEP is initiated within 2 hours but it can go up to 72 hours following exposure to potentially infected blood or other body fluids and the dose continues for 28 days [12–14].

Despite being at the highest risk, HCPs are also responsible for counseling and initiation of PEP to other individuals when exposure occurs [12,13]. The studies conducted in Africa on knowledge of PEP among HCPs demonstrated inconsistent level of knowledge across the region [9,10,11,15,16]. In Tanzania, studies were conducted in 2007, 2012 and 2013 reported the majority of HCPs to have unsatisfactory knowledge on PEP [4,11,17]. Previously reported determinants of PEP knowledge among HCPs to include qualifications, level of education, experience, and type of health facility [11,18].

Since 2015 in Tanzania there have been implementations of new policies and guidelines on PEP with many campaigns and seminars on prevention and treatment of HIV among HCPs [13]. There has also been a huge increase in the number of qualified HCPs and health care facilities all over the country. However, recent data on the HCPs level of knowledge on PEP are lacking. Therefore, this study aimed to provide an update on the level of knowledge on PEP against HIV infection among HCPs in public health facilities in Ilala district, Dar es Salaam.

## **Methods**

### **Study design, Area, and Populations**

A health care facilities based cross-sectional study was conducted between April and June 2018 in Ilala municipal Dar es Salaam, Tanzania. The study involved 2 public hospitals and 8 dispensaries. The study population comprised of HCPs including medical doctors, nurses, pharmaceutical personnel, and health laboratory personnel.

### **Sample Size and Sampling Technique**

A consecutive sampling method was deployed to recruit participants and a total of 233 HCPs were enrolled after being informed and agreed to sign a consent form.

### **Data collection procedure and Scoring of knowledge**

Data were collected using a self-administered questionnaire with closed-ended questions. The questionnaires were in English and had three sections; socio-demographic characteristics, knowledge assessing part and the last part for assessing the source of the knowledge regarding PEP. A total of 5 questions were developed by using published articles/guidelines [10,11,12,14] and were used to assess the level of knowledge with a total of 7 points. The questions were pre-tested and validated using 20 HCPs. Bloom's cut off point was generated by calculating the median and inter quarterly range (IQR) of the scores point as follows; 0–25% percentile was equivalent to 0–3 points and considered as low knowledge,  $\geq 75\%$  percentile equivalent to 6–7 points and was considered as high knowledge and between (26–74) % percentile equivalent to 4–5 points was considered as moderate knowledge.

## Data analysis

Microsoft Excel sheet was used for data entry. Data cleaning and analysis was performed using statistical package for social sciences (SPSS) version 23.0. Frequencies and percentages were used to summarize social-demographic characteristics and level of knowledge. Association between independent variables and level of knowledge was done by Chi-square and multinomial logistic regression. The result was of statistical significance when  $p < 0.05$ .

## Results

### Socio-demographic characteristics of the study participants.

A total of 233 HCWs participated in this study. The majority of the participants 72.1% (168) were female and the majority of the HCPs 47.2 % (110) were aged  $\geq 55$  years. Those with diploma education level constituted the largest proportion of the participants 43.8 % (102) and the majority were nurses 50.2 % (117). Most of the respondents 48.5% (133) had working experience of more than 10 years and majority 42.1% (98) were working in dispensaries, *Table 1*.

### Level of knowledge of PEP among HCPs

Thirty-two percent (32.2%) of HCPs had low knowledge on PEP, 39.9% had moderate and 27.9% high knowledge, *figure 1*. Majority of the study participants 87.6% (204) were knowledgeable on the dosage duration for PEP. However, only 41.2% (96) knew the recommended ARV regimen for PEP in Tanzania and 48.9% (114) knew on how soon should PEP be initiated in order to prevent acquisition of HIV infection, *Figure 2*.

### Association between independent variables and the level of knowledge among HCPs.

Sex, age, working experience and level of health facilities were not determinants of the level of knowledge among HCPs ( $p>0.05$ ). On the chi-square test, the level of knowledge was significantly affected by the level of education whereby those with a degree seemed to have high knowledge 38.9% (21) compared to those with a low level of education at  $p\text{-value} < 0.001$ , *Table 2*. On logistic regression analysis those with certificate were more likely to have low knowledge compared to diploma and degree holders (aOR(95% CI) 14(3.9–50.8),  $p = <0.01$ ) analysis, *Table 3*.

## Sources of information regarding PEP among HCPs

The main source of PEP information to study participants was HIV treatment guideline (29%) followed by seminars (22%) and classroom lectures (15%). Other mentioned sources of information include social media, friends, posters, broadcasting, textbooks and ward rounds, *figure 3*.

## Discussion

This study was designed to assess the knowledge of HCPs on PEP 3 years following the introduction of Tenofovir based HAART regimens for PEP and managements of people living with HIV(PLHIV). Majority of respondents had low (32.2%) to moderate (39.9%) knowledge. This finding is consistent with previous reports in Tanzania [11,17], Uganda [10], Nigeria [19] and Cameroon [20] whereby the majority of HCPs had inadequate knowledge on PEP. More than 75% of our study participants had a certificate or a diploma which could be a contributing factor to the observed low knowledge among study participants. The inadequate level of knowledge among HCPs with certificate level could due the fact that the topic on pre and post-exposure prophylaxis of HIV infection is not weakly engaged in their training course. Therefore, findings from this study necessitate a need for health college/university to consider PEP and make it conspicuous topic in their curriculum.

Post exposure prophylaxis should be provided as soon as possible following exposure as its efficacy in preventing transmission is time dependent [21]. Low knowledge was demonstrated by HCPs on how soon should PEP be initiated. Only 41.2% were able to mention the regimen that are currently recommended for PEP in Tanzania. Majority of the HCPs were knowledgeable on the duration of taking PEP, whereby 87.6% answered that PEP should be taken for 28 days. These results are similar to what was reported in Ethiopia [22] and Botswana [23], whereby the majority of HCPs (> 90%) were aware of the duration of taking PEP but about 50% failed to respond on how soon should PEP be initiated. This can be explained by the previous experience gathered by HCPs on PEP management as it is now more than 15 years since the care and treatment clinics (CTCs) were established in 2004 in Tanzania. The results are similar between these countries probably because they are all located in Sub-Sahara Africa and share some similarities in their Health policy regarding to PEP.

Most of the respondents obtained knowledge regarding PEP from HIV treatment guidelines (29%) followed by seminars (22%) and only 15% from class lectures. Although the current study didn't focus on availability of HIV/AIDS guidelines but it has revealed the role of reference materials and seminars in

fostering HCPs knowledge on PEP. The findings are further supported by similar studies conducted in Ethiopia and Botswana, where the majority of the HCPs obtained information regarding PEP after attending training (seminars) [22,23].

All other factors such as; age, sex, years of experience, profession and level of health facilities failed to predict the level of knowledge of PEP among HCPs on both levels of analysis. Different in education level attained by the HCPs appeared to be a determinant of the level of knowledge. Those with a certificate level of education appeared to have low knowledge of PEP compared to those with a degree. This could be due to differences in program duration attended; certificate programs are short (maximum of 2 years) compared to degree courses (maximum of 5 years) and content of the curriculums. Therefore, those who are taking degrees are more exposed to different disease management approaches, are more exposed to the health system of the country through field sessions and internship. This finding is similar to what reported in northwest Ethiopia and Cameroon, in which those with higher educational status demonstrated adequately level of knowledge [18,20].

## **Limitation**

Consecutive sampling poses a risk of selection bias. Study area prevents generalization of the results to HCPs in health facilities located in semi-urban and rural settings.

## **Conclusion**

Majority of HCPs have low to moderate knowledge of PEP. The level of knowledge on PEP among HCPs increased with the level of education whereby degree holders are more knowledgeable. PEP should be part of continuous professional development for all HCPs working in the CTCs so that updated information regarding changes of guidelines is timely absorbed

## **Declarations**

## **Authors' Contributions**

MK and VK had full access to all of the data in the study and take responsibility for the integrity of the data and the accuracy of the data analysis. Study concept and design: MK, VK, WPM, GMB, HJM, AIM, and RFM. Acquisition, analysis, or interpretation of data: MK, VK and AIM. Drafting the manuscript: MK and AIM. Critical revision of the manuscript for important intellectual content: all authors. All authors read and approved the final manuscript.

## **Acknowledgments**

We would like to thank Ilala Municipal district medical officer for providing permission for the conduction of this study. Moreover, much appreciation is to all HCPs in all visited health facilities for their

participation during data collections.

## Competing Interests

The authors declare that they have no competing interests.

## Availability of Data and Materials

The dataset generated and/or analyzed during the current study is available from the corresponding author upon reasonable request.

## Ethical consideration

Ethical clearance was granted by the director of research and publication ethical committee of Muhimbili University of Health and Allied Sciences (MUHAS). The purpose of the study was explained to all participants and signed consent was obtained before the beginning of data collection.

## Consent for Publication

Not applicable.

## Funding

None.

## References

1. Baggaley BF, Boily MC, White RG and Alary M. Risk of HIV–1 transmission for parenteral exposure and blood transfusion: a systematic review and meta-analysis. *AIDS*. 2006. 20:805–812.
2. Welch J, Mason F. Rape and sexual assault. *BMJ* 2007; 334:1154–8.
3. Mponela MJ, Oleribe OO, Abade A, Kwesigabo G. Post-exposure prophylaxis following occupational exposure to HIV: A survey of health care workers in Mbeya, Tanzania, 2009–2010. *Pan Afr Med J*. 2015;21:2009–10.
4. Mashoto KO, Mubyazi GM, Mushi AK. Knowledge of occupational exposure to HIV: A cross-sectional study of healthcare workers in Tumbi and Dodoma Hospitals, Tanzania. *BMC Health service*. 2015;15(1):29.
5. Kabyemera R, Kalolo A, Fernando G, Bergson S. Occupational exposures and utilization of HIV postexposure prophylaxis amongst health workers of three hospitals in Tanzania's Lake Zone. *African Eval J*. 2015;3(2):8.

6. Chalya PL, Seni J, Mushi MF, Mirambo MM, Jaka H, Rambau PF, et al. Needle-stick injuries and splash exposures among health-care workers at a tertiary care hospital in north-western Tanzania. *Tanzan J Health Res.* 2015;17(2):1–15.
7. Manyele S V, Ngonyani HAM, Eliakimu E. The status of occupational safety among health service providers in hospitals in Tanzania. *Tanzan J Health Res.* 2008;10(3):159–65.
8. Chunqing L, Li L, Zunyou W, Sheng W, Manhong J. Occupational Exposure to HIV Among Health Care Providers: A Qualitative Study in Yunnan, China. *J Int Assoc Physicians AIDS Care (Chic).* 2008; 7(1): 35–41.
9. Aminde LN, Takah NF, Noubiap JJN, Tindong M, Ngwasiri C, Jingi AM, et al. Awareness and low uptake of post-exposure prophylaxis for HIV among clinical medical students in a high endemicity setting. *BMC Public Health.* 2015;15(1):1104.
10. Alenyo J.; Jombwe,J.J R. F. Knowledge, Attitude, and Practices of Staffs towards Post-exposure Prophylaxis for HIV Infection at Mulago Hospital in Uganda. *East Cent Africa Journal Surg.* 2012;14(2):99–102.
11. Chagani MM, Manji KP, Sheriff FG. Healthcare Workers' Knowledge, Attitudes and Practices on Post Exposure Prophylaxis for HIV in Dar Es Salaam. *Tanzania Med J.* 2011;25(2):1–6.
12. World Health Organisation. Guidelines on Post-Exposure Prophylaxis for HIV and the Use of Co-Trimoxazole Prophylaxis for Hiv-Related Infections Among Adults, Adolescents and Children: Recommendations for a Public Health Approach. 2014;52.
13. NACP. Tanzania National guidelines for the management of HIV and AIDS. 2015;1–269.
14. Ajibola S, Akinbami A, Elikwu C, Odesanya M, Uche E. Knowledge, attitude and practices of HIV post exposure prophylaxis amongst health workers in Lagos University Teaching Hospital. *Pan Afr Med J.* 2014;19:172.
15. Tebeje B, Hailu C. Assessment of HIV post-exposure prophylaxis use among health workers of governmental health institutions in Jimma Zone, Oromiya Region, Southwest Ethiopia. *Ethiop J Health Sci.* 2011;20(1).
16. Esin IA, Alabi S, Ojo E, Ajape AA. Knowledge of human immunodeficiency virus post-exposure prophylaxis among doctors in a Nigerian Tertiary Hospital. *Niger J Clin Pract.* 2011;14(4):464–6.
17. Kimaro L, Adinan J, Damian DJ, Njau B (2018) Prevalence of occupational injuries and knowledge of availability and utilization of post-exposure prophylaxis among health care workers in Singida District Council, Singida Region, Tanzania. *PLoS ONE.* 2018;13(10).
18. Desta M, Ayenew T, Sitotaw N, Tegegne NT, Dires M, and Getie M. Knowledge, practice and associated factors of infection prevention among healthcare workers in Debre Markos referral hospital, Northwest Ethiopia. *BMC Health Services Research.* 2018; 18:465.
19. Owolabi RS, Alabi P, Ajayi S, Daniel O, Ogundiran A, Akande TM, et al. Knowledge and Practice of Post-Exposure Prophylaxis (PEP) against HIV Infection among Health Care Providers in a Tertiary Hospital in Nigeria. *J Int Assoc Physicians AIDS Care.*2012;11(3):179–83.



20. Ngwa CH, Nghoh EA, Cumber SN. Assessment of the knowledge, attitude, and practice of health care workers in Fako Division on post-exposure prophylaxis to blood borne viruses: a hospital-based cross-sectional study. Pan African Medical Journal. 2018; 31:108.

21. Eticha EM, Gemeda AB. Knowledge, Attitude, and Practice of Post-Exposure Prophylaxis against HIV Infection among Healthcare Workers in Hiwot Fana Specialized University Hospital, Eastern Ethiopia. AIDS Research & Treatment. 2019. 12;1–6.

22. Mathewos B, Birhan W, Kinfu S, Boru M, Tiruneh G, Addis Z and Alemu A. Assessment of knowledge, attitude and practice towards post-exposure prophylaxis for HIV among health care workers in Gondar, NorthWest Ethiopia. BMC Public Health 2013, 13:508.

23. Bareki PTenego T. Assessment of knowledge, attitudes, and practices of HIV post-exposure prophylaxis among the doctors and nurses in Princess Marina Hospital, Gaborone: a cross-sectional study. Pan African Medical Journal. 2018; 30:233.

Tables

Table 1: Sociodemographic characteristics of study participants

Characteristic	N	(%)
<b>Sex</b>		
Male	65	27.9
Female	168	72.1
<b>Age group(years)</b>		
<39	25	10.7
40-55	98	42.1
>55	110	47.2
<b>Experience(years)</b>		
<1	12	5.2
1-5	63	27.0
6-10	45	19.3
>10	133	48.5
<b>Profession</b>		
Doctors	72	30.9
Pharmaceutical personnel	13	5.6
Nurses	136	58.4
Lab technicians	12	5.2
<b>Education level</b>		
Certificate	77	33.0
Diploma	102	43.8
Degree	54	23.2
<b>Health facility</b>		
Hospitals	62	26.6
Health centers	73	31.3
Dispensaries	98	42.1

*Table 2: Distribution and association of knowledge on PEP for HIV with healthcare workers' variables (n=233).*

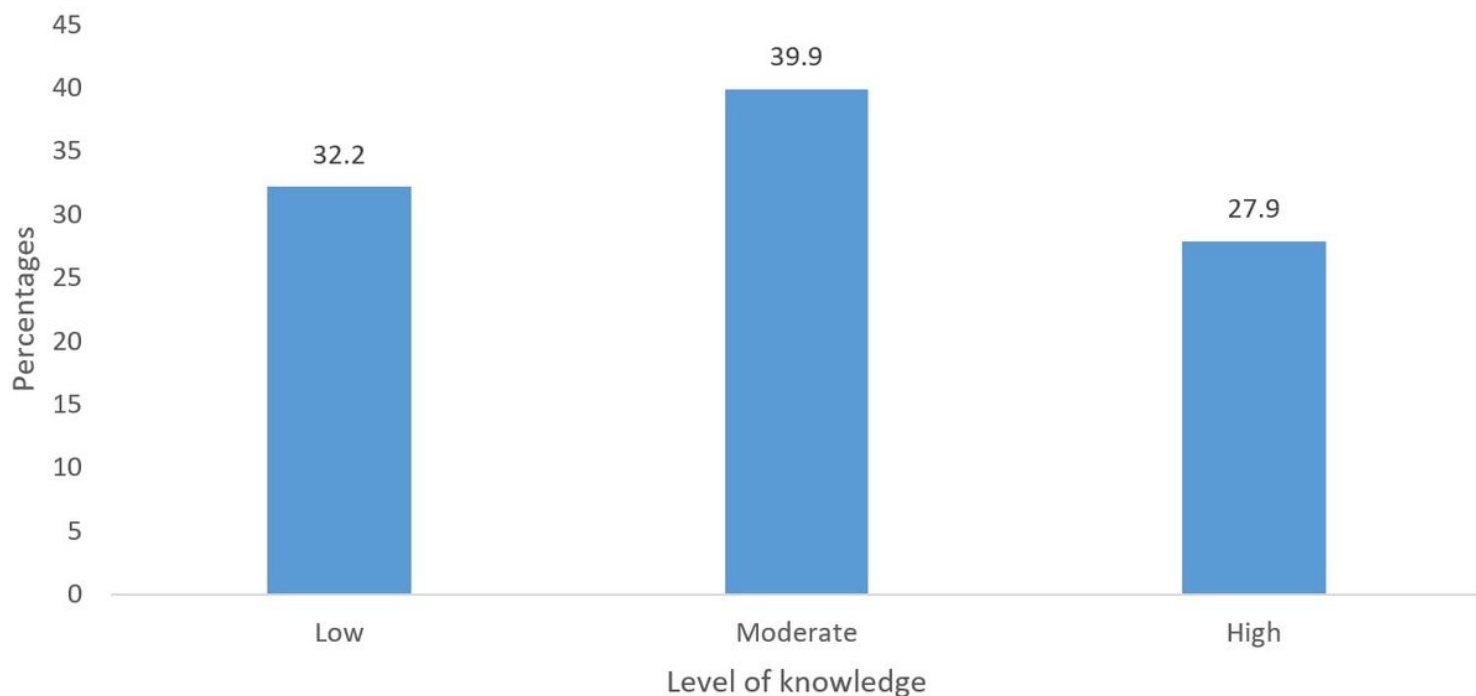
Characteristic	Level of Knowledge			P-value
	Low (n=51) No (%)	Moderate (n=84) No (%)	High (n=98) No (%)	
<b>Sex</b>				
Male	21(32.3)	24 (36.9)	20(30.8)	0.79
Female	54(32.1)	69(41.1)	45(26.8)	
<b>Age group(years)</b>				
<39	9(36)	9(36)	7(28)	0.93
40-55	33(33.7)	40(40.8)	25(25.5)	
>55	33(30)	40(40)	30(30)	
<b>Experience(years)</b>				
<1	5(41.7)	5(41.7)	2(16.7)	0.68
1-5	24(38.1)	22(34.9)	17(27)	
6-10	16(35.6)	18(40)	11(24.4)	
>10	30(26.5)	48(42.5)	35(31)	
<b>Profession</b>				
Doctors	19(26.4)	30(41.7)	23(31.9)	0.67
Pharmaceutical	6(46.2)	3(23.1)	4(30.8)	
Nurses	46(33.8)	54(39.7)	36(26.5)	
Lab technicians	4(33.3)	6(50)	2(16.7)	
<b>Education level Certificate</b>				
Diploma	42(54.5)	24(31.2)	11(14.3)	<0.001
Degree	22(21.6)	47(46.1)	33(32.4)	
	11(20.4)	22(40.7)	21(38.9)	
<b>Health facility</b>				
Hospitals				0.85
Health centers	17(27.4)	25(40.3)	20(32.3)	
Dispensaries	25(34.2)	30(41.1)	18(24.7)	
	33(33.7)	38(38.8)	27(27.6)	

Table 3; Regression analysis of the level of knowledge and associated factors for HCWs regarding PEP

Variable	cOR(95% CI) (Low knowledge)	P-value	cOR(95% CI) (Moderate knowledge)	P-value	aOR(95% CI) (Low knowledge)	P-value	aOR(95% CI) (Moderate knowledge)	P-value
<b>Sex</b>								
Male	0.9(0.4 – 1.8)	0.72	0.8(0.4 – 1.6)	0.49	1.3(0.5 – 3.2)	0.65	0.9(0.4 – 2.0)	0.73
Female	1		1		1		1	
<b>Age</b>								
<39	1.3(0.4 – 3.9)	0.65	0.9(0.3 – 2.9)	0.95	0.5(0.1 – 1.8)	0.28	0.7(0.2 – 2.4)	0.62
40 – 55	1.3(0.7 – 2.7)	0.44	1.2(0.6 – 2.4)	0.59	0.6(0.2 – 1.9)	0.42	1.2(0.4 – 3.5)	0.72
>55	1		1		1		1	
<b>Profession</b>								
Doctor	0.4(0.1 – 2.5)	0.34	0.4(0.1 – 2.4)	0.33	0.9(0.1 – 6.3)	0.90	0.5(0.1 – 3.1)	0.50
Pharmaceutical personnel	0.8(0.1 – 6.2)	0.79	0.3(0.0 – 2.2)	0.22	0.7(0.1 – 7.8)	0.78	0.2(0.0 – 2.4)	0.23
Nurse	0.6(0.1 – 3.7)	0.62	0.5(0.1 – 2.6)	0.41	0.5(0.1 – 3.8)	0.53	0.5(0.1 – 2.9)	0.43
Lab technician	1		1		1		1	
<b>Experiences</b>								
<1	2.9(0.5 – 16.1)	0.2	1.8(0.3 – 9.9)	0.49	1.7(0.2 – 13.4)	0.60	1.7(0.3 – 11.2)	0.58
1 – 5	1.6(0.8 – 3.6)	0.22	0.9(0.4 – 2.0)	0.88	1.6(0.5 – 5.3)	0.46	0.7(0.2 – 2.1)	0.53
6 – 10	1.7(0.68 – 4.2)	0.25	1.2(0.5 – 2.8)	0.69	2.2(0.7 – 7.1)	0.20	1(0.3 – 3)	0.90
>10	1		1		1		1	
<b>Educational level</b>								
Certificate	7.3(2.7 – 19.5)	<0.01	2.1(0.8 – 5.3)	0.12	14(3.9 – 50.8)	<0.01	2.3(0.7 – 7.2)	0.15
Diploma	1.3(0.51 – 3.2)	0.12	1.4(0.6 – 2.9)	0.42	1.6(0.6 – 4.4)	0.33	1.4(0.6 – 3.1)	0.44
Degree	1		1					
<b>Health facility</b>								
Hospitals	0.7(0.3 – 1.6)	0.39	0.9(0.4 – 1.9)	0.76	1.4(0.5 – 3.5)	0.53	1.1(0.49 – 2.6)	0.77
Health centers	1.1(0.5 – 2.5)	0.75	1.2(0.5 – 2.5)	0.67	1.2(0.5 – 2.9)	0.62	1.3(0.6 – 2.9)	0.49
Dispensaries	1		1		1		1	

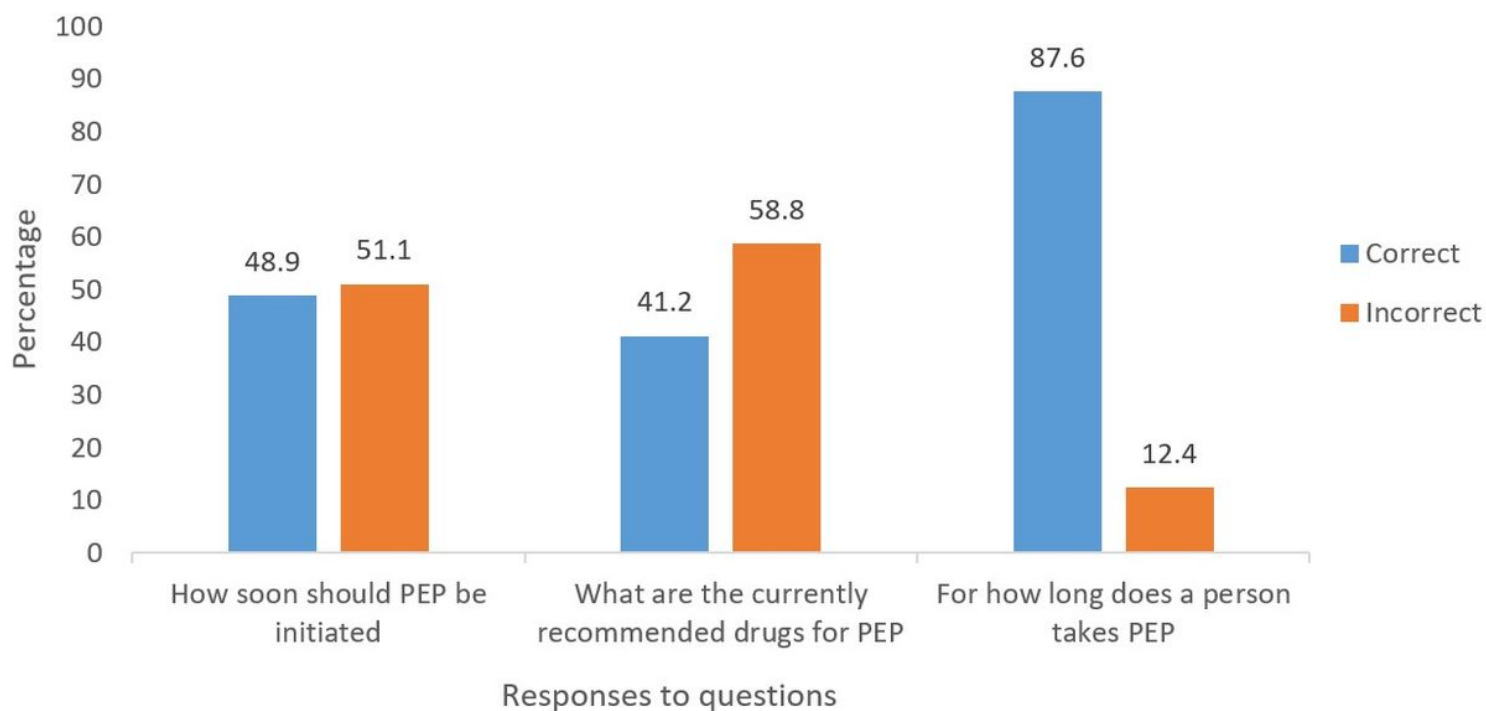
High knowledge was kept as a reference category, OR=Odds ratio, CI= Confidence interval

## Figures



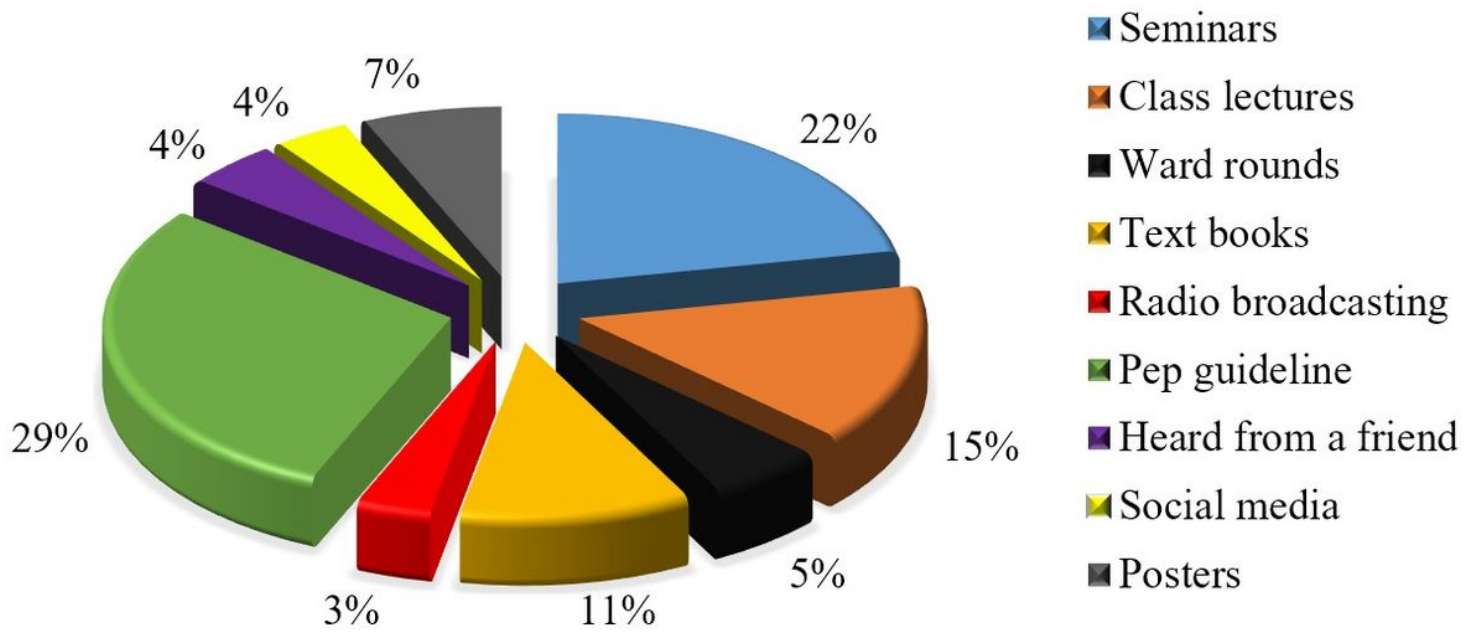
**Figure 1**

Participants knowledge of PEP for HIV (n=233)



**Figure 2**

Response to key questions assessing the level of knowledge among HCPs regarding PEP (n=223)



**Figure 3**

Sources of information regarding PEP among HCPs